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	Application No.	Applicant(s)
Notice of Allowability	10/067,351	SIMARD ET AL.
	Examiner	Art Unit	
	David S. Kim	2613	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to *20 June 2006*.

2. ☒ The allowed claim(s) is/are *1-6*.

3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a) ☐ All   b) ☐ Some*   c) ☐ None of the:

        1. ☐ Certified copies of the priority documents have been received.

        2. ☐ Certified copies of the priority documents have been received in Application No. _____ .

        3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

    * Certified copies not received: _____ .

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.

5. ☒ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.

    (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached

        1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____ .

    (b) ☒ including changes required by the attached Examiner's Amendment / Comment or in the Office action of

        Paper No./Mail Date _____ .

    Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).

6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☒ Notice of References Cited (PTO-892)

2. ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)

3. ☐ Information Disclosure Statements (PTO-1449 or PTO/SB/08), Paper No./Mail Date _____

4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material

5. ☐ Notice of Informal Patent Application (PTO-152)

6. ☐ Interview Summary (PTO-413), Paper No./Mail Date _____ .

7. ☒ Examiner's Amendment/Comment

8. ☐ Examiner's Statement of Reasons for Allowance

9. ☐ Other _____ .

KENNETH VANDERPUYE
SUPERVISORY PATENT EXAMINER

EXAMINER'S AMENDMENT

1.   An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Mr. John D. Harris on Friday, August 04, 2006. The application has been amended as follows:

In the claims (additions are underlined portions, deletions are strikethrough portions)

Claim 1

"A variable clamp equalization method for a plurality of wavelengths in a signal, comprising the steps of:…"

Claim 3

"A variable clamp equalization apparatus for a plurality of wavelengths in a signal, comprising:…"

Claim 4

"The apparatus according to claim 3, wherein the means for computing the raw power adjustment correction factor ~~computing means~~ further includes:…"

Claim 5

"A computer readable medium storing a computer program implementing ~~storing instructions or statements for use in the execution of~~ a variable clamp equalization method for a plurality of wavelengths in a signal ~~in a computer~~, the method comprising the steps of:

(i) ~~a processing portion for~~ measuring optical signal to noise (OSNR) values for each wavelength;

(ii) ~~a processing portion for~~ computing an OSNR range value of the measured OSNR values;

(iii) ~~a processing portion for~~ computing an OSNR average value of the measured OSNR values;

(iv) ~~a processing portion for~~ computing a raw power adjustment value for each wavelength by subtracting each wavelength's measured OSNR value from the computed OSNR average value;

(v) ~~a processing portion for~~ computing a raw power adjustment correction factor for each computed raw power adjustment value based on the computed OSNR range value in accordance with a

pre-defined variable clamp value schedule, wherein a larger clamp is scheduled for use when the

computed OSNR range value is larger, and a smaller clamp is scheduled for use when the computed

OSNR range value is smaller;

(vi) ~~a processing portion for~~ determining a clamped power adjustment value for each wavelength

by multiplying each computed raw power adjustment value by the computed raw power adjustment

correction factor;

(vii) ~~a processing portion for~~ applying the corresponding determined clamped power adjustment

value to each wavelength; and

(viii) ~~a processing portion for~~ iterating <u>steps</u> ~~processing portion~~s (i) through (vii) until the

computed OSNR range value is within pre-defined boundaries whereby the signal is considered equalized.

Claim 6

The computer readable ~~storage~~ medium according to claim 5, wherein the raw power adjustment

correction factor is computed by ~~including~~:

~~a processing portion for~~ determining the largest magnitude computed raw power adjustment

value; and

~~a processing portion for~~ dividing the schedule clamp value by the determined largest magnitude

computed raw power adjustment value.

In the specification

Applicant filed the following amendment to the specification on 20 June 2006:

"Referring to Figure 1A, the present invention may utilize a measurer 102 to measure the optical
signal to noise ratio (OSNR) values for each wavelength; a OSNR computer 104 to compute an
OSNR range value, and an OSNR average value of the measured OSNR values; a raw power
adjustment value computer 106 to compute a raw power adjustment value for each wavelength by
subtracting each wavelength's measured OSNR value from the computed OSNR average value; a
raw power adjustment correction factor computer 108 to compute a raw power adjustment
correction factor for each computed raw power adjustment value based on the computed OSNR
range value in accordance with a pre-defined variable clamp value schedule, a larger clamp is
scheduled for use when the computed OSNR range value is larger, and a smaller clamp is

scheduled for use when the computed OSNR range value is smaller; a multiplier 110 to determine a clamped power adjustment value for each wavelength by multiplying each computed raw power adjustment value by the computed raw power adjustment correction factor.

The corresponding determined clamped power adjustment value will then be applied to each wavelength. The process may be repeated until the computed OSNR range value is within pre-defined boundaries, and the signal is considered equalized." (filed on 20 June 2006, p. 3)

Replace this amendment above with the following text:

"Referring to Figure 1A, the present invention may utilize a measurer 102 to measure the optical signal to noise ratio (OSNR) values for each wavelength; an OSNR range value computer 104 to compute an OSNR range value of the measured OSNR values, as well as an OSNR average value computer 105 to compute an OSNR average value of the measured OSNR values; a raw power adjustment value computer 106 to compute a raw power adjustment value for each wavelength by subtracting each wavelength's measured OSNR value from the computed OSNR average value; a raw power adjustment correction factor computer 108 to compute a raw power adjustment correction factor for each computed raw power adjustment value based on the computed OSNR range value in accordance with a pre-defined variable clamp value schedule, a larger clamp is scheduled for use when the computed OSNR range value is larger, and a smaller clamp is scheduled for use when the computed OSNR range value is smaller; a clamped power adjustment value determinator 110 to determine a clamped power adjustment value for each wavelength by multiplying each computed raw power adjustment value by the computed raw power adjustment correction factor. The corresponding determined clamped power adjustment value will then be applied to each wavelength by a clamped power adjustment value applicator 112. The process may be controlled by an iterator 114 to repeat the steps until the computed OSNR range value is within pre-defined boundaries, and the signal is considered equalized. Referring to Figure 1B, the raw power adjustment correction factor computer 108 may further comprise a determinator 116 for determining the largest magnitude computed raw power adjustment value; and a divider 118 for dividing the scheduled clamp value by the determined largest magnitude computed raw power adjustment value."

Additionally, insert the following text in between lines 32 and 33 on page 3 of the specification:

"FIG. 1A is a schematic overview of a variable clamp equalization apparatus according to an embodiment of the present invention.

FIG. 1B is a schematic overview of a raw power adjustment correction factor computer."

In the drawings

2.   Applicant's compliance with the objections to the drawings in the previous Office Action (mailed on 20 March 2006) is noted and appreciated. Applicant responded by filing a new drawing, Fig. 1A, on 20 June 2006. This drawing is disapproved. Accordingly, it is not entered.

-       Fig. 1A shows one unit, OSNR computer 104, as the means for computing (ii) and the means for computing (iii) in claim 3. However, the rest of the specification does not support/disclose the use of *one* unit as the means for computing (ii) *and* the means for computing (iii) in claim 3.

-       Fig. 1A labels unit 108 as a "Clamped power adjustment value computer" where the corresponding specification states that it should read "Raw power adjustment correction factor computer" (filed on 20 June 2006, see the amendment to the specification on p. 3)

-       The following means from claim 3 are not shown in Fig. 1A (nor in the other figures): the means for applying (vii) and the means for iterating (viii).

-       The following means from claim 4 are not shown in Fig. 1A (nor in the other figures): the means for determining and the means for dividing.

3.   The following changes to the drawings have been approved by the examiner and agreed upon by

applicant:

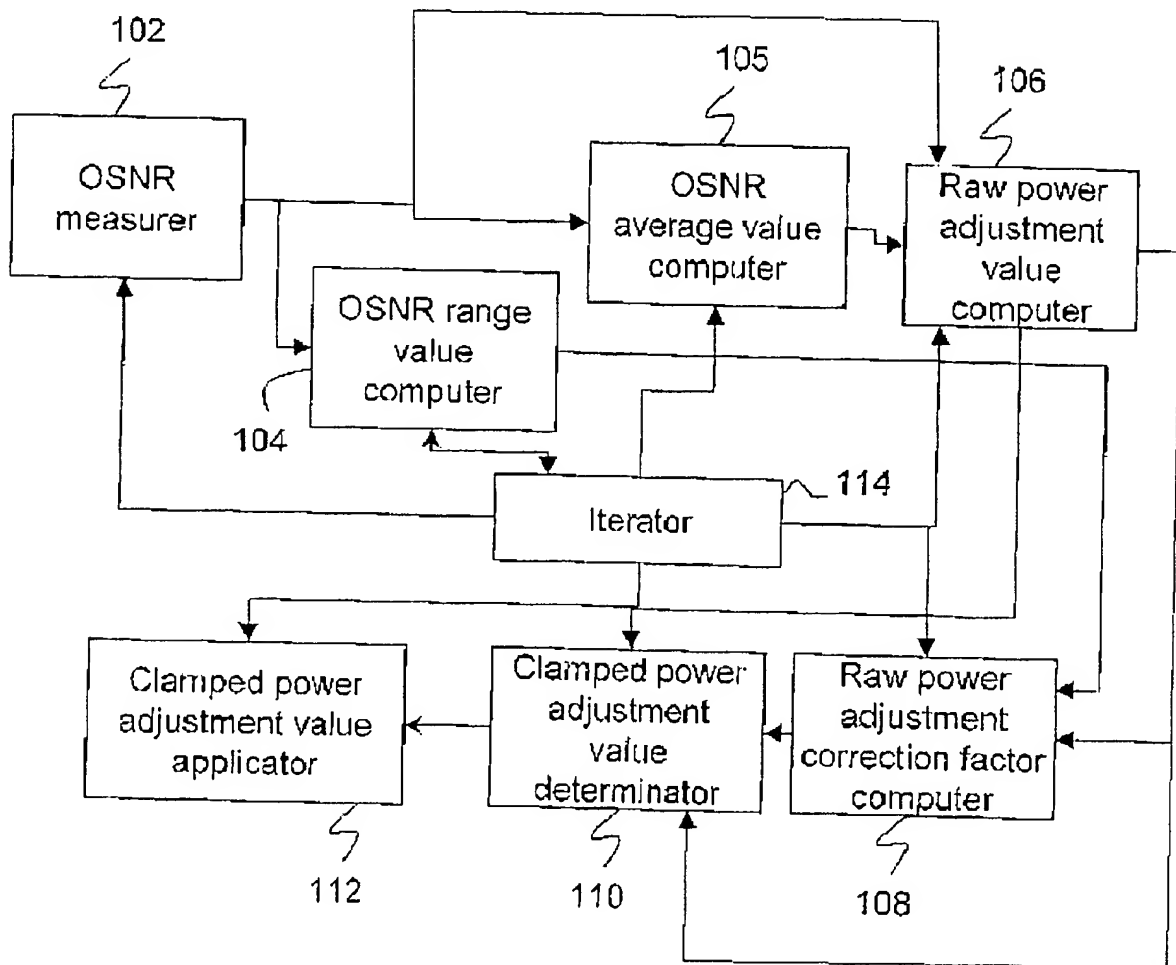**Amend Fig. 1A to more closely match the following suggested diagram:**

Figure 1A

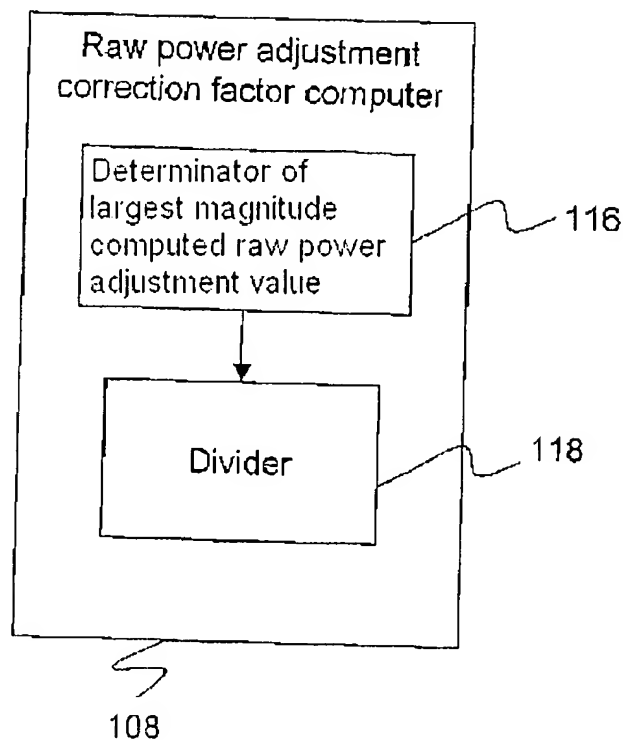**Add a new Fig. 1B to closely match the following suggested diagram:**

Figure 1B

In order to avoid abandonment of the application, applicant must make these above agreed upon drawing changes.

Conclusion

4.   The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Weiske et al. (WO/2000/025465, English translation in U.S. Patent No. 7,020,092 B1) is cited to show a related method for performing equalization on WDM channels. The method of Weiske et al. is similar to Applicant's invention, except for two particular differences. Firstly, most of the calculations in Weiske et

al. are in terms of channel power levels (e.g., Ptx and Prx in Figs. 2A-3B), but most of the calculations in Applicant's invention are in terms of OSNR. Secondly, the method of Weiske et al. calculates a multiplication factor by employing a maximum permissible dynamic range, a mean signal power and maximum signal power discrepancies (e.g., claims 1 and 4), but Applicant's invention calculates a multiplication factor by employing a computed OSNR range value and a pre-defined variable clamp value schedule.

5.   Any inquiry concerning this communication or earlier communications from the examiner should be directed to David S. Kim whose telephone number is 571-272-3033. The examiner can normally be reached on Mon.-Fri. 9 AM to 5 PM (EST).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kenneth N. Vanderpuye can be reached on 571-272-3078. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

DSK

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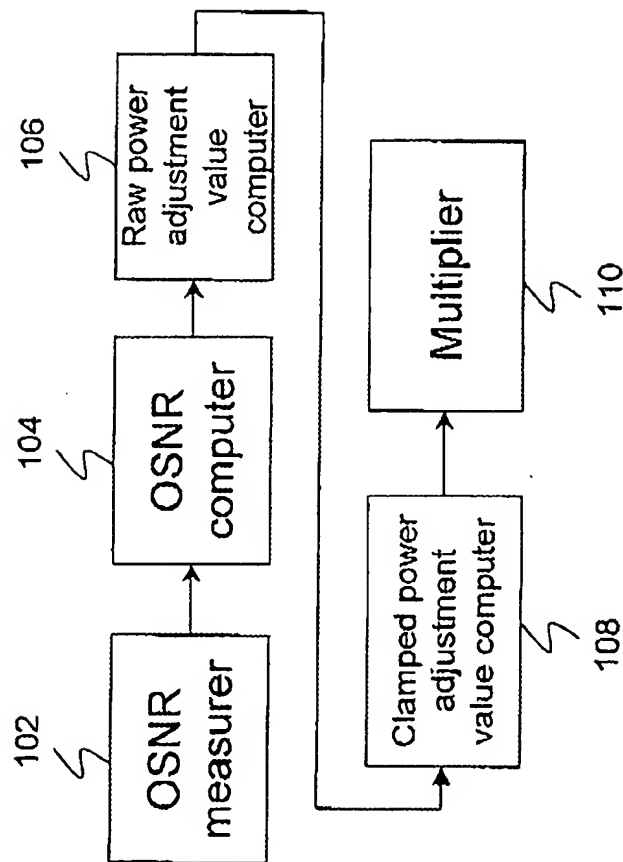
New Sheet

Disapproved by DSR
17 July 2006

Figure 1A